d.   Remarks

Claim amendments

The independent claims are claims 1, 6, 12, and 16.

Amended claim 1 combines old claims 1 and 2.

Amended claim 6 combines old claims 6 and 7.

Amended claim 12 combines old claims 12, 13, and 14.

Claim 16 is, e.g., supported by old claims 16 and 12.

Claims 19 – 29 are cancelled without prejudice.

New dependent claims 32 – 33 are, e.g., supported between page 4, line 29, and page 5, line 3, of the specification.

Claim Objections

The Office Action objects to old claims 6 and 13 in stating that parameter "i" should be defined. Amended claims 6 and 12 recite --by the integer i—rather than "by i" and thus, should be clear.

Rejections under 35 U.S.C. 112

At page 2, the Office Action rejects claims 12 – 18 under 35 U.S.C. 112, 1st par., as either omitting a critical or essential feature or as being single means claims.

An omitted feature may be a basis for a claim rejection if the specification teaches that the omitted feature is critical or essential. See e.g., M.P.E.P 2164.08 (c). But, the Office Action does not show a teaching in the specification that a feature is critical or essential, wherein the feature is absent from claims 12 - 18. Instead, at page 2, paragraph 3, the Office Action only states that "steps for transmitting a signal are critical or essential to the practice of the invention, but not included in the claim(s) ...." (underlining added). Such a statement is insufficient to support an omitted feature rejection of a claim. For that reason, any omitted critical or essential feature rejections of claims 12 – 18 should be withdrawn.

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A single means rejection may be made if a claim recites only a single means-plus-function element. Applicants state that claim 12 does not recite a means-plus-function element. Claim 12 is not written in a form that invokes a presumption of means-plus-function language, and it is not Applicant's intention to recite a means-plus-function element. Instead, claim 12 recites a modulator, i.e., a structure, and functional features thereof. For these reasons, any "single means rejections" of claims 12 – 18 should be withdrawn.

Rejections under 35 U.S.C. 102

At page 3, the Office Action rejects claims 1 and 5 as anticipated by U.S. Patent 5,867,534 (Herein, referred to as Price).

Amended claim 1 combines old claims 1 and 2. Since the Office Action did not reject old claim 2 as being anticipated, amended claim 1 is novel over Price.

Claim 5 is novel over Price, at least, by its dependence on amended claim 1.

Rejections under 35 U.S.C. 103

At page 4, the Office Action rejects claim 2 as obvious over Price. Amended claim 1 combines old claims 1 and 2.

The Office Action states:

> ... However, Price et al. teaches that the utilizing NRZ of [sic] [for] modulating data stream onto carrier in [sic] widely known (Col. 2, lines 5-16). Thus, the claimed subject matter "wherein ... symbols" would have been optional to one skilled in art.

Office Action, page 4, lines 4 – 7.

The above-cited portion of Price, i.e., col. 2, lines 5-16, does not teach a non-return-to-zero (NRZ) waveform as recited in amended claim 1. In particular, Price states:

> ..., to modulate said carrier, the carrier is transmitted with:
> a <u>maximal amplitude to represent</u> the maximal value and the minimal value of the filtered modulation signal, ...; and
> a <u>minimum amplitude to represent</u> the intermediate value of the modulation signal;

Price, col. 2, lines 6 – 14 (underlining added).

A modulation method that produces a maximal amplitude to represent some values of signals and produces a minimal amplitude to represent other values of the signals

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suggests a return-to-zero (RZ) modulation rather than the NRZ modulation of amended claim 1. Other portions of Price also support a teaching of RZ modulation rather than NRZ modulation. For example, Price's Figures 2 and 3 illustrate the use of filtered modulated carriers SMF and SMF' to produce modulated carriers PPM and PPM'. Both PPM and PPM' are RZ modulated carriers, because both PPM and PPM' have minimal amplitude values, e.g., values of about zero, as would be characteristic of RZ modulation. Since the Office Action does not provide a citation for the NRZ waveform recited in amended claim 1, the Office Action has not provided a case of prima facie obviousness for amended claim 1.

At page 4, the Office Action rejects claims 12, 15, and 17 - 18 as obvious over a combination of Price and U.S. Patent 6,366,418 (Herein, referred to as McEwen).

At page 5, the Office Action also states that original claim 13 is allowable. For that reason, the Office Action provides no basis for rejecting amended claim 12, which combines original claims 12, 13, and 14.

Claims 15, 17 – 18, and 33 are non-obvious, at least, by their dependence on amended claim 12.

At page 5, the Office Action rejects claim 16 as obvious over the combination of Price and McEwen.

In particular, the Office Action states:

> **Regarding claim 14,** … However, Price et al. teaches that the utilizing NRZ of [sic] [for] modulating data stream onto carrier in [sic] widely known (Col. 2, lines 5-16). Thus, the claimed subject matter "wherein … symbols" would have been optional to one skilled in art.
> **Regarding claim 16,** see claim 14 above.

Office Action, page 5, lines 8 – 13.

As described above for amended claim 1, the cited portion of Price at col. 2, lines 5 – 16, does not teach NRZ modulation. Rather, this portion of Price suggests RZ modulation. Thus, the Office Action does not provide a teaching for each element of amended claim 16 and has not established a case of prima facie obviousness. For that reason, Applicants request that the obviousness rejection of amended claim 16 be withdrawn.

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Claims 30 – 32 are non-obvious, at least, by their dependence on non-obvious base claim 16.

Conclusion

For the above reasons, Applicants respectfully request allowance of all claims as presently pending.

No fee is believed due.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit Lucent Technologies Deposit Account No. 12-2325 to correct the error.

Respectfully,

John McCabe

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Date: Oct, 7, 2004

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